



Hydrolysate shipment from APG

Aberdeen Proving Ground, located in Harford County, Maryland, has stored a portion of the Army's mustard agent stockpile safely for more than 60 years. Destruction of the stockpile was scheduled for completion by 2006, but was accelerated after the terrorist attacks of Sept. 11, 2001.

APG began the process of destroying the stockpile in April 2003 using a neutralization process at the Aberdeen Chemical Agent Disposal Facility (ABCDF). Once full-scale operations are reached, the process will take approximately six months.

During neutralization, the liquid mustard agent is drained from its steel containers and fed into tanks containing hot water. The mustard agent and hot water are mixed vigorously, causing an irreversible chemical reaction in which the mustard agent is destroyed and a byproduct called hydrolysate is produced. The hydrolysate is then transported to DuPont's Secure Environmental Treatment at Chambers Works, located in Deepwater, N.J., where it is biotreated.

What is hydrolysate?

The hydrolysate [pronounced high-DRAWL-ih-sate] is a muddy-looking liquid that is approximately 90% water with a mixture of salts, an organic chemical called thiodiglycol [pronounced THIGH-oh-die-GLY-kol] and possible minute traces of impurities — organic

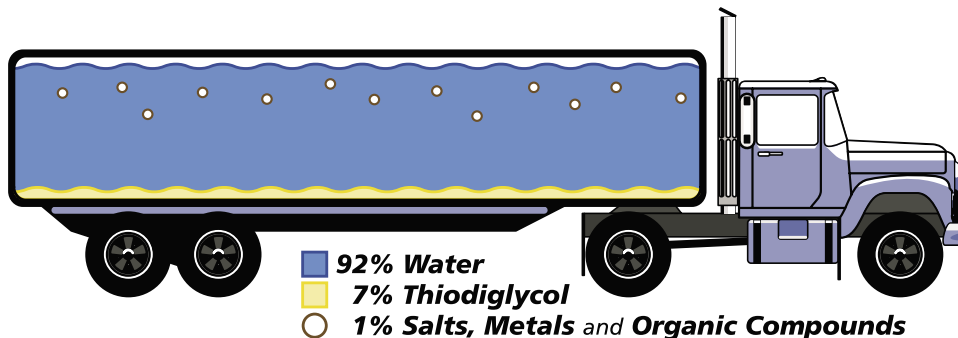
compounds and metals, such as copper and iron — which were present in the mustard agent, but not destroyed in the neutralization process. The hydrolysate does not contain mustard agent. Thiodiglycol, known chemically as dihydroxyethyl sulfide, is a commercial compound used extensively in the ink and paint industry. As part of the extensive testing that went into the design of the disposal facility, the hydrolysate was tested for toxicity. The testing concluded that the hydrolysate does not demonstrate any acute inhalation, oral or dermal toxicity.

What will happen to the hydrolysate?

The hydrolysate will be treated by DuPont Secure Environmental Treatment at Chambers Works using a state-of-the-art, two-stage enhanced biodegradation process employing innovative technology created by DuPont. DuPont Secure Environmental Treatment processes more than 18 million gallons of wastewater daily. It is the largest commercial and industrial wastewater treatment facility in the United States. DuPont signed a contract May 15, 2002, with the Army's systems contractor, Bechtel National, to treat the mostly water byproduct of the mustard agent neutralization process. (Bechtel National, Inc. (BNI) is the prime contractor. Bechtel Aberdeen is the five-company team, headed by BNI, involved in designing, building, testing, operating and closing the Aberdeen facility.)

For more information,
contact the
Public Outreach and
Information Office of the
Chemical Materials
Agency (Provisional)
1(800) 488-0648 or
www.cma.army.mil

or visit the
Edgewood Chemical
Stockpile
Outreach Office
Woodbridge Station
1011 B Woodbridge Center Way
Edgewood, Maryland 21040
Phone: (410) 676-6800
Fax: (410) 676-2483





Hydrolysate shipment from APG (continued)

Is hydrolysate hazardous?

The hydrolysate is neither explosive nor flammable. It will be tested before it leaves the facility to ensure that no mustard agent can be detected. By regulation, it will be considered a hazardous waste and it will be handled accordingly, but in comparison to other chemicals and hazardous material transported commercially every day by truck or rail, it is relatively benign.

Harford County Emergency Manager Doug Richmond told citizens at a recent public meeting, "I would rather deal with the hydrolysate than most of the chemicals we have going up and down the I-95 and railroad corridors every day." Nonetheless, the Army and Harford County will continue to exercise emergency response plans in coordination with other teams at the local, state and federal levels and will work closely with their partners to ensure that human health and the environment are not jeopardized in any way during the transport of the hydrolysate.

How will the hydrolysate be transported?

Trained hazardous materials drivers under contract to DuPont will transport the hydrolysate to Chambers Works from APG using a dedicated fleet of 5,000-gallon tanker trucks. The neutralization of the entire Aberdeen stockpile and the decontamination of the containers will produce roughly 7 million gallons of hydrolysate. DuPont eventually will receive approximately 12 trucks a day, five days a week, during full-scale operations.

Hydrolysate will be classified as a Resource Conservation and Recovery Act (RCRA) hazardous waste, even though some analyses to date show it to be non-hazardous. The potential hazardous classification is driven by the

possible presence of the trace organic and metal impurities in the hydrolysate. Our assessment is that it would be shipped in accordance with Department of Transportation rules as a Class 9 hazardous waste. The recommended emergency response measures for the hydrolysate are the same as for consumer commodities (e.g., household cleaners, etc.) shipped as Class ORM-D, (the DOT classification commonly used by industry to ship household chemicals to retail stores for sale to the public).

Like wastes of similar (and greater) hazard, hydrolysate can be safely transported in tanker trucks specifically configured to carry hazardous waste. These trucks meet the stringent requirements of the Department of Transportation and will be operated by experienced and specially licensed hazardous waste transport operators. No special police or security escorts will be required. It is possible that the tanker trucks will require security seals to comply with international treaty requirements. Each truckload will be carefully inspected, recorded and tracked. Chemical Weapons Convention inspectors may be present also at the Chambers Works facility to ensure that all aspects of the hydrolysate biotreatment meet treaty requirements.

For more information about neutralization of the mustard agent stockpile at Aberdeen Proving Ground, call the Public Outreach and Information Office, (410) 436-4555 or (410) 436-6137; the Edgewood Chemical Stockpile Outreach Office, (410) 676-6800; the Aberdeen Chemical Agent Disposal Facility Public Affairs Office, (410) 436-5253; or the Bechtel Aberdeen Public Outreach Office, (410) 436-9507. Also, you may visit our Web site at www.cma.army.mil.

For more information about the DuPont Secure Environmental Treatment program, call the External Affairs Office, (302) 992-4273.